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Cotton Textile Machinery

The Second and Final Report of the Committee of Investigation into the Cotton Textile Machinery Industry, recently issued by H.M. Stationery Office —price 4d. net—is of distinct interest to the foundry industry. It recounts how the Cotton Industry Working Party desired to see the production and installation of 120,000 automatic looms in five years, whereas the textile machinery industry can only supply half that number in a decade. The word "automatic" is a misnomer, as all looms merit the term, but it is held in this Report to mean a design in which broken yarn is mended without recourse to human effort and where the feeding of the yarn is continuous. The Report points out that, as is well known by foundrymen, the mass production of specialised castings for textile machinery cannot be increased by seeking the needed output from amongst the thousand and one foundry concerns. Increased supply of castings can only be secured by the extension of plant by the existing makers or by the creation of new facilities. It is pleasing to learn—after deciphering double negatives—that the machines made by the British makers—especially the British Northrop Loom concern—are satisfactory. A reversion to wartime production methods, as a means to provide the necessary machinery, is discussed in all its implications with negative result. The conditions to-day are so very different that such action is well-nigh impossible.

It seems that it is possible to adapt some existing "non-automatic" looms with additional gadgets so as to make them "automatic," but the field for this is somewhat limited. The recommendations made make no reference to the existing policy of exporting 30 per cent. of the production of "automatic" looms now being made. Thus there is an *impasse* for the overcoming of which the Committee see no solution. We are reasonably sure that these findings would parallel those sought by the planners in most fields of endeavour. Even if the 120,000 looms were forthcoming, it would probably be found that the local power stations could not sustain the load, or that the shops, or sheds as they appear to be known, were in some way unsuitable. This Report is much more interesting than most of this type of publication, because it does take the subject to finality—even though a blank has been drawn. Because of this, we suggest the close study of its contents and implications by all those concerned with planning—especially Government officials. The conversion of industrial plant to utilise oil fuel is a good example of half-baked Government planning, for the planners forgot the necessity of special transport for oil. Hence the disappearance of the basic petrol allowance to the private motorist. Another outcome of the Report is the throwing into relief of the very limited elasticity in the make-up of the iron-foundry industry. This industry has been under the eye of the planners ever since the war finished and the subject is still being pursued. The first lesson the planners must learn is that the products of Stanton and Blakey's Boot Protectors are not interchangeable, nor are those of Radiation and Ford's, nor those of British Baths and Alfred Herbert, and so forth. Thus, the industry is composed of a large number of almost "watertight" compartments, for jobbing shops cannot mass produce, nor can mass-production concerns enter the jobbing field. This elementary lesson was stressed during the wartime concentration drive, the outstanding "bloomer" being the attempt to graft a bedstead foundry on to a railway shop! Surely the foundry industry is best left to develop naturally. If the

(*Concluded on page* 26.)

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Cotton Textile Machinery

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Government ever deem it desirable materially to increase the output of pianos, typewriters, machine tools, and many other lines involving the incorporation of castings in their make-up, a commission would eventually produce a report carrying much the same conclusions as the Evershed Report on Cotton Textiles, that is, there is a limit to any specialised foundry production which those in the field well know.

Forthcoming Events

(Secretaries are invited to send in notices of meetings, etc., for inclusion in this column.)

JANUARY 10.

Institute of British Foundrymen.

Burnley Section :—" The Production of Castings for Internal Combustion Engines," by C. R. Van der Ben and H. Haymes, at Accrington Grammar School, at 6 p.m.

JANUARY 12.

Sheffield Branch :—" The Use of Fulbond in Foundries," by L. Roy, at the Royal Victoria Hotel, Sheffield, at 7.30 p.m.

JANUARY 13.

West Riding of Yorkshire Branch :—" Improvements in Conditions and Amenities in Foundries," by H. Berry, 1st prize winning Paper in the F. J. Cook Award, at the University of Leeds, at 7 p.m.

The Institute of Metals.

Swansea Section :—Display of Industrial Films, at the Metallurgy Department, University College, Swansea, at 6.30 p.m.

Institution of Works Managers.

Liverpool Branch :—" Science in the Small Factory," by Prof. T. P. Hilditch, in the Exchange Hotel, Liverpool, at 6.45 p.m.

North Western Fuel Luncheon Club.

" One Year of Nationalisation," by A. L. Horner (Gen. Sec., National Union of Mineworkers), at the Engineers' Club, Albert Square, Manchester, at 12 noon for 1.15 p.m.

JANUARY 14.

Belfast Association of Engineers.

" Modern Developments in Steel," by Wm. Barr.

JANUARY 15.

Institute of British Foundrymen.

Lincoln Section :—" Venting of Cores and Moulds," by D. Killingworth, at the Lincoln Technical College, at 7.15 p.m.

Institution of Production Engineers.

Manchester Graduate Section :—Film on " Metal Spraying," introduced by W. E. Ballard, at the College of Technology, Sackville Street, Manchester, at 7.15 p.m.

JANUARY 16.

Institution of Mechanical Engineers.

" The Screen in Relation to Engineering Training," introduced by H. R. Hockley, B.Sc.(Eng.), at 5.30 p.m., at Storey's Gate, St. James's Park, London, S.W.1.

Institute of British Foundrymen.

Luncheon and Special Meeting, at the Waldorf Hotel, London, W.C.2, for a presentation to Mr. T. Makemson, marking the completion of his 21 years' service as secretary, followed by a lecture " The Inter-relation of the Engineering and Metallurgical Industries," by Sir Arthur Fleming, C.B.E., D.Eng. Reception at 12.30 p.m.

Middlesbrough Branch :—" The Production of High Quality Steel," film presented by W. H. Salmon, at the Cleveland Scientific and Technical Institute, Middlesbrough, at 7 p.m.

Correspondence

[We accept no responsibility for the statements made or the opinions expressed by our correspondents.]

CASTING BALLS ON IRON RODS

To the Editor of THE FOUNDRY TRADE JOURNAL

SIR,—With reference to the above query from Mr. D. Huss, I think that if the following routine is practised, he will overcome the difficulties he has encountered. Jag the wrought iron rod and split the end. Pickle the rod and give it a good coating of tin, as for babbitting.

I do not advise that the wrought iron be placed in the mould too hot, slightly warming to take off the chill should be sufficient. The effect of too hot an insert in a green sand mould is to cause condensation, hence the gas holes resulting in the casting.

Yours, etc.,

A. W. WALKER.

11, Summerfield Road, Chesterfield.

December 30, 1947.

A second reply to Mr. Huss reads as follows:—

Omit the jagged barbs on the rod, if this is at all possible, and achieve the necessary keying effect by turning several grooves around the end to be cast in. These should be V-shaped with rounded roots and shoulders.

Thoroughly shotblast the end section of the rod after machining the grooves and brush off any residual dust remaining as a result of the former operation. The section to be cast in should then be given a coat of good quality aluminium paint and stove dried. Spraying of the paint is preferable to application by brush as a thinner coat can be applied. When completely dry insert the rod within the mould and cast up as soon as possible.

Commenting on the existing procedure, it is felt that by heating the rod previous to its insertion in the mould, a greater margin of play will be created between the ball and the rod (when both have cooled down) than would otherwise be present had the rod been inserted cold. In other words, the expansion caused by the preliminary heating results in a certain amount of additional shrinkage of the rod when the casting and rod cool down.

Regarding the blowholes beneath the casting skin it is suggested that a more permeable moulding sand should be tried. If these defects are the result of " flutter " from the iron rod, the aluminium paint should take care of this. Incidentally, tinning of the rods will give similar results to aluminium paint but the cost of the former process is prohibitive in comparison. Trusting these suggestions prove helpful, I am, yours, etc.,

FERGUS J. MCCULLOCH.

137, Lichfield Road,

Four Oaks, Sutton Coldfield. December 31, 1947.

[We thank readers for other replies sent direct to our correspondent.—EDITOR.]

The Manufacture of Some Large Castings for Marine Engineering*

By D. H. Young

Introduction

Foundrymen suffer from a lack of appreciation of the craft and skill that go to the production of the raw material of the engineering world. They should correct this deficiency, as they are the only people who can do so. They should stir up a thoughtful appreciation of their work, rather than permit well-meaning but not knowledgeable personnel to present misleading and erroneous views of it.

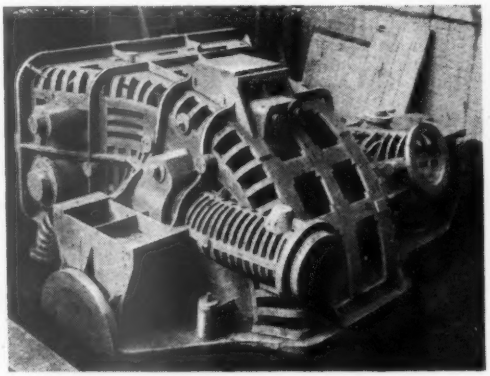

FIG. 1.—LOW-PRESSURE TURBINE PATTERN IN THE CASTING PIT, BOTTOM HALF. VIEW FROM AFT END LOOKING OUTBOARD.

It is well known that founding is an art and a great craft, but in the foundry family, as in all families, there are varying degrees of talent and craftsmanship. There is a great difference between the skill of a moulder on bench work and a moulder on turbine or cylinder work, or between the plate moulder and the steel moulder making stern frames.

The foundryman is a creator; he is not merely "messing about" with sand and dirt. In the jobbing foundry his work cannot by any stretch of the imagination be called repetition work. It is work requiring both manual skill and intelligence. It is craft work that has no superior in any other branch of engineering. There is in the jobbing foundry a wide field for the man with the desire to create, and it is not a job fit only for those considered unsuitable to become workers in the machine shop. The craftsmanship, which will now be described, is not inferior to that in any other branch of engineering activity.

*A Paper read before the Scottish Branch of the Institute of British Foundrymen, of which the Author is a past-president.

Low-pressure Turbine

A low-pressure turbine casting can be complicated, due to the fact that the main exhaust is brought out to the side. It is the making of this casting that will be described.

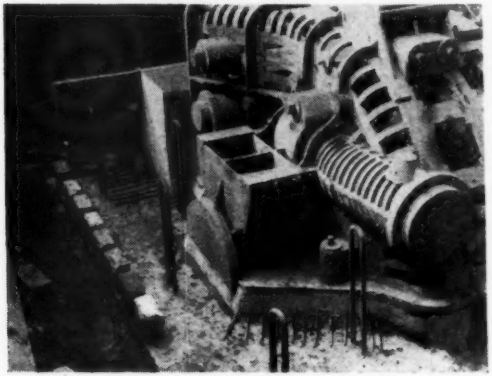

FIG. 2.—LOW-PRESSURE CYLINDER, BOTTOM HALF. PLATE IN POSITION FOR AFT END DRAWBACK.

The drawing of such a casting may be received by the morning mail, with the request for the best price per cwt. and earliest delivery, "and as the matter is urgent your reply per return will oblige." Here is the first hazard, craft and skill have to be compounded with a mass of metal, the weight of which is usually not specified and converted into shillings and pence per cwt.

The pattern (Fig. 1) is of the skeleton type, and is a splendid example of the craft of the patternmaker. It is a job which is a delight to the true craftsman. There can be no straight draw, as there is with a block pattern, and it is decided that seven drawbacks are necessary. There are three bottom-half drawbacks; one in the way of the exhaust, extending alongside to the forward bearing blocks, one at the opposite side, and one at the aft end. Then there are four top-half

Manufacture of Large Castings

drawbacks; one at the exhaust port, one at the opposite side, one at the forward end, and one at the aft end.

When the pattern has been bedded down, the bottom-half drawback in way of the main exhaust is built up, with the parting on the centre line. This is shown completed in Fig. 2, and work is then begun on the bottom-half drawback at the aft end of the turbine. The parting, cut to form the joint for the drawback, is noteworthy. The bottom plate with the necessary lifters for future handling is in position, and it will be seen that this plate is amply proportioned for the duty required of it. A very large mass of sand has to be dealt with and sand is approximately 27 cwt. per cub. yd.

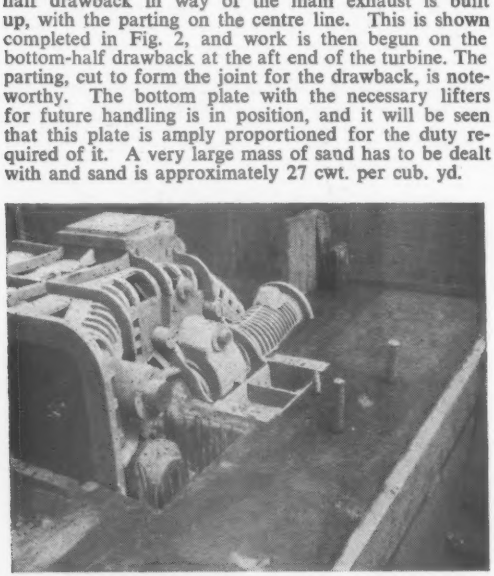

FIG. 3.—LOW-PRESSURE CYLINDER, BOTTOM HALF. AFT END DRAWBACK COMPLETED.

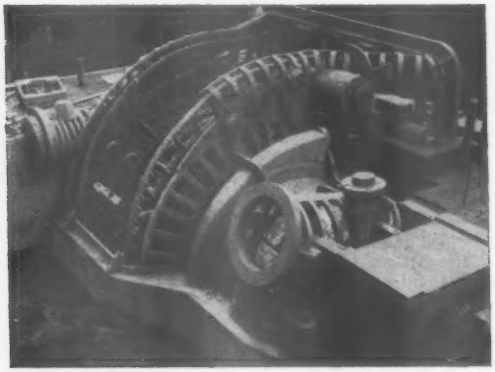

FIG. 4.—LOW-PRESSURE CYLINDER, BOTTOM HALF. VIEW OF EXHAUST CORE IRONS.

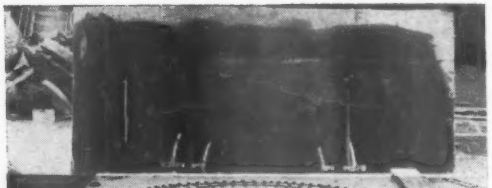

FIG. 5.—LOW-PRESSURE CYLINDER, TOP HALF. EXHAUST CORE IRONS, FIRST STAGE. MARKING OFF DIAMETERS FROM DRAWING BOARD.

FIG. 6.—LOW-PRESSURE CYLINDER, BOTTOM HALF. CLOSE-UP OF EXHAUST CORE IRONS.

Fig. 3 shows how large is this mass. The bottom drawback is here completely rammed up. The pins which form the down gates, for the introduction of the metal at this end of the casting, will be noted, also the parting on the line of the steam pipe and the loose piece in the way of the branch. The main exhaust core is now started and Fig. 4 shows the core irons and lifters in position.

Core Irons

Core irons are a vital part of the job, and are as important as any other detail of the job. They require thought and careful design, and should be cast with hot fluid iron. The practice of using spare metal for core irons should not be tolerated.

On the core bed the craftsman scribes off, from the drawing board, the size and shape of the irons he requires, and Fig. 5 is a view of the moulds ready for casting.

As will be seen from Fig. 6, the core irons for the job under review are well proportioned, and so designed that, when contraction occurs, they will not retard it. The method of attachment by keying to the bottom lifting iron and the down gates on the first drawback, for the introduction of metals to the barrels, can be seen. Owing to varying sections at all re-entrant angles, chills are necessary, and these are seen in Fig. 7, as also is the method of attachment to the core irons. Note the discrimination in the spacing of the chills. Ramming course upon course, bearing in mind the need for a readily collapsible core, the core is completed.

FIG. 7.—LOW-PRESSURE CYLINDER, BOTTOM HALF. SECTION OF EXHAUST CORE IRON, SHOWING CHILLS.

FIG. 8.—LOW-PRESSURE CYLINDER, BOTTOM HALF. SIDE DRAWBACK SHOWING METHOD OF BINDING WITH IRONS OR GRATINGS.

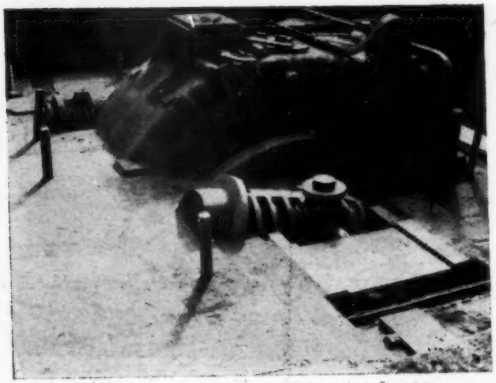

FIG. 9.—LOW-PRESSURE CYLINDER, BOTTOM HALF. SIDE DRAWBACK COMPLETED.

Manufacture of Large Castings

Replacing the skeleton core iron and clothing it, the moulder proceeds to the bottom-half side drawback (Fig. 8). Again, the heavy plate with lifters can be seen, and also the stiffeners to carry the overhang at the flange after the bottom course from the plate has been rammed. The tying down at the back of drawback to prevent sag in front when lifting will be noted, and again also the need for intelligence for the guarding against binding or holding. The provision for down gates on this side of the job will be seen; ramming intelligently course upon course, the drawback is completed.

Work on the forward end is proceeded with (Fig. 9) as for the aft end. Then with all the bottom drawbacks rammed up, work proceeds with the top-half drawbacks at the exhaust side and forward end, and a return is then made to the aft end.

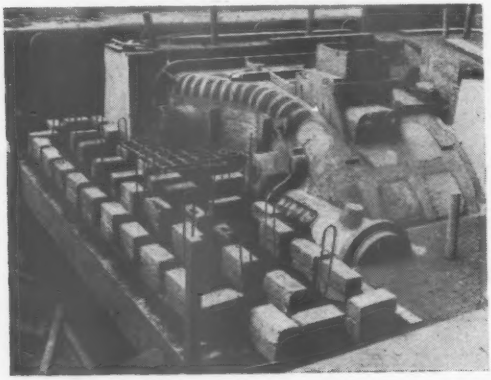

FIG. 10.—LOW-PRESSURE TURBINE, BOTTOM HALF. AFT END DRAWBACK NO. 2. FIRST STAGE.

FIG. 12.—LOW-PRESSURE TURBINE, BOTTOM HALF. JOB FULLY RAMMED, WITH TOP PART OFF.

Fig. 10 shows the first stage of the work on the top drawback, and it is typical of all the others. The bottom grating can be seen in position; this is made in sections for fixing to the main lifting iron. The lifting iron is placed in position on the bricks seen here, and these bricks provide the necessary rigidity and prevent

FIG. 11.—LOW-PRESSURE TURBINE, BOTTOM HALF. VIEW SHOWING AFT-END DRAWBACK COMPLETED, WITH THE FINAL DRAWBACK IN ITS FIRST STAGE.

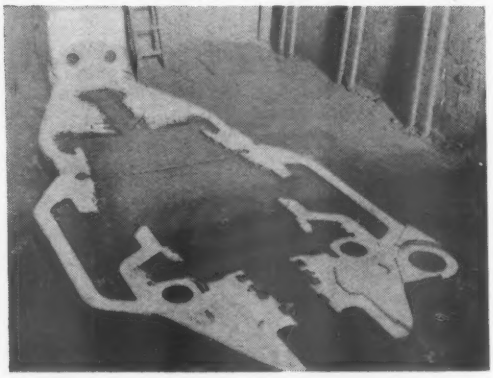

FIG. 13.—LOW-PRESSURE CYLINDER, BOTTOM HALF. VIEW OF MOULD PREPARATORY TO CLOSING.

distortion of underside when the bottom stiffener is keyed to the lifting iron. Note also the provision for the drawback within the drawback in way of the side branches.

The aft end top drawback completed is shown in Fig. 11, which gives a good idea of the system of partings. It shows how the aft drawback is carried in to the main exhaust, and also forms part of the steam branch, the grating for which is seen in Fig. 10.

The last top drawback is now commenced and on the side of the pit one of the sections of the lifting irons will be seen. These will be positioned above the boss on the steam branch, and fixed by key or toggle to the lifters seen in position; these lifters are fixed to the bottom stiffener. The same procedure as already explained for the top-half drawback is again followed, *i.e.*, bricks provide the necessary rigidity. The job is as seen in Fig. 12, which shows it completely rammed, with the top part off. Here a good idea is given of the arrangement of lifters, risers and runners. After ramming the top part, which carries the cod forming the top of the exhaust bend, the job is stripped.

The drawbacks are finished, black-washed and got ready for the drying stoves. All cores are thicknessed, finished, black-washed and dried, and the pattern dismantled. Drawbacks and cores are dried in stoves and the mould bottom is dried *in situ*.

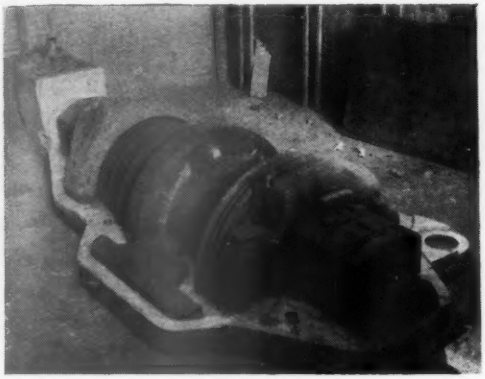

FIG. 14.—LOW-PRESSURE CYLINDER, BOTTOM HALF. VIEW SHOWING BARREL AND AUXILIARY CORES.

FIG. 16.—LOW-PRESSURE TURBINE, BOTTOM HALF. AFT-END CORES COMPLETED.

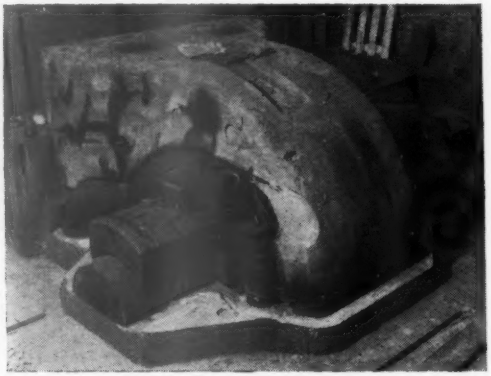

FIG. 15.—LOW-PRESSURE TURBINE, BOTTOM HALF. AFT-END CORES IN POSITION.

FIG. 17.—LOW-PRESSURE TURBINE, BOTTOM HALF. FORWARD-END TOP DRAWBACK ABOVE ITS POSITION.

Manufacture of Large Castings

Progress Registered

Up to now what has been done? The moulding staff have handled approximately 150 tons of sand, requiring about 30 tons of core iron, fashioned it to bring into

FIG. 18.—LOW-PRESSURE TURBINE, BOTTOM HALF. READY FOR THE LAST DRAWBACK.

being a designer's creation and, doing so, have laboured with mind and hand for 1,141 hrs.—ten weeks for three men.

The drying completed, rebuilding starts anew on the base in Fig. 13. This is all that is left in the pit, when all drawbacks and cores have been removed, and it is on

FIG. 19.—LOW-PRESSURE TURBINE, BOTTOM HALF. ALL CORES AND DRAWBACKS IN POSITION READY FOR THE TOP PART.

this that the mould is assembled. In a job of this type there is no tying down of the cores; these are located in print and held in position by chaplets. The venting is carried out through the openings which can be seen, all of which are connected to a common bed of ashes led to sides of pit.

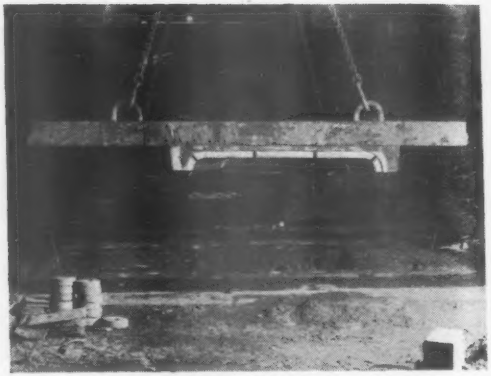

FIG. 20.—LOW-PRESSURE TURBINE, BOTTOM HALF. FINAL STAGE; TOP PART READY FOR LOWERING.

Mould Assembly

The guttering, which can be seen at three points, is for connecting the vents from three saddle cores at these positions to the main ash bed. Starting with the bearing and barrel cores, which are seen in position in Fig. 14, the bottom-half drawbacks at the main exhaust

FIG. 21.—LOW-PRESSURE TURBINE, BOTTOM HALF. AFT-END "ACHIEVEMENT."

and the forward end are placed in position before locating the main exhaust core. This completed, the coring at the aft end is then complete. In Fig. 15, the chaplets holding the cores in position can be seen.

This accomplished, closing-in is commenced and, with the bottom-half drawbacks at the forward and aft end and port side in position, the stage shown in Fig. 16 is reached and, after placing the top-half drawbacks, the aft end is commenced. It is lowered into position and carries a cod, which forms the core for the stool at the aft end of the turbine. This in position, the forward end is located (Fig. 17), and here it is being lowered into position. Fig. 18 shows the mould ready for the last

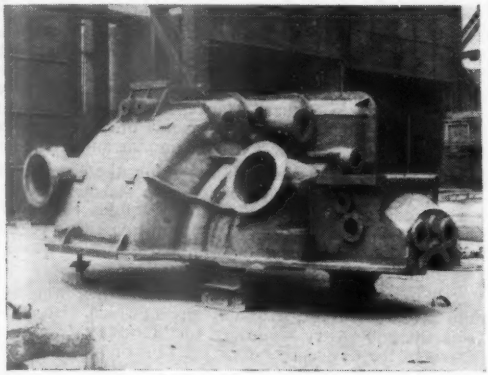

FIG. 22.—LOW-PRESSURE TURBINE, BOTTOM HALF.

drawback. After ramming and shoring up between the sides of drawbacks and sides of pit, the mould (Fig. 19) is ready for the top. This carries the part of the mould which forms the top of the main exhaust. Note the toggles fixing the main lifting plate to the top part which, in Fig. 20, is being lowered into position. The job is then bound, head boxes are made up and it is then ready to cast.

The closing has taken 223 hrs. of careful, precise work, and in all, for 1,364 hrs., 12 weeks have been occupied—a long time. The job was cast in 1 min. 15 secs.

Figs. 21 and 22 show the craftsman's achievement. This casting weighs 9 tons 6 cwts. 3 qrs. 7 lbs.

(To be continued.)

"*Lorna*"

The illustration in the adjacent column shows the Lorna statuette, which has been designed, modelled and cast by Mr. J. Longden, of E. Tullis & Company, Limited, of Clydebank. It was commissioned by "Power Laundry" as a national trophy for annual competition by laundry girls throughout Great Britain. The statuette is 15 in. high, cast in bronze, and is mounetd on a 3-in. base of *verte antique*.

"Lorna"

DESIGNED AND EXECUTED BY J. LONGDEN.

Metallurgy in the '48s

One of the outstanding centenaries occurring during 1948 is that, on August 12, of the death of George Stephenson, who was born at Wylam, a village occupied by coal miners and iron-furnacemen, in 1781, and at a very tender age became a trapper in a mine. A few years later he was employed in picking slates and dross from the coal as it came to the surface, at a wage of five shillings* a week, and rose to be brakesman at twelve shillings.

Stephenson first became famous when, independently of Davy, he invented a safety lamp for miners, and he subsequently applied himself to the problem of coal haulage. He was so dissatisfied with his progress, however, that he seriously contemplated emigrating to the United States, where he intended to go into partnership with an ironfounder named Burrell.

It was, of course, as the "Father of English Railways" that Stephenson found his real *métier*, beginning with the Stockton and Darlington, Britain's premier railway, in which it is interesting to recall that he recommended malleable rails instead of cast iron. In the closing years of his life he founded the Institution of Mechanical Engineers, of which he became first President.

Another celebrity who died in 1848—on June 2—was James Watt, who was the son of the greater James, and became a partner in the famous Soho firm, where, in the words of a contemporary obituary notice, "he was successfully engaged in carrying out those inventions and improvements by which the genius of his father was immortalised."

It was in 1848 that Andrew Carnegie emigrated to the United States, where he subsequently established the Union Ironworks, in which he introduced the Bessemer process, and also founded the Homestead and other steelworks.

On January 23 a century ago, the French steamer Cuvier was destroyed by "the spontaneous combustion of coals." Joshua Field became that year President of the Institution of Civil Engineers, of which he was a founder, and was, moreover, the first president who was purely a mechanical engineer. Another famous Field—Frederick—became in 1848 chemist to a copper-smelting works in Chile. Edward Davy gave up his career of pioneer electrical work, and was appointed manager of copper-smelting works at Yatala, in Australia. William Tierney Clark, an ex-mechanic at the Coalbrookdale foundry, made himself famous by the construction of the great suspension bridge at Budapest. The great Kelvin (then a very youthful Professor Thomson) introduced his absolute scale of temperatures; and there was published in that year James Dwight Dana's "Manual of Mineralogy."

George Stephenson was not the only famous railway engineer who was among the obituaries of 1848. Thomas Gray, who died on October 15 that year, was nicknamed the "Railway Pioneer" on account of his life-long advocacy of a "general iron road" through Britain. Another notability who died in 1848 was Thomas Firth, who was a melter of steel in a Sheffield firm until he joined his two sons in establishing his own business, with a six-hole furnace at Sheffield. On his death his son Mark became head of the firm, adding the great Derbyshire works to those of Sheffield.

Joseph Taylor, who died on February 3 a century ago, was a notable machine maker of Leeds, and "a gentleman of great worth and generosity." On November 23 died Sir John Barrow, founder of the Royal Geographical Society, who began his career at the age of 14 as timekeeper in a Liverpool ironfoundry, in which he was eventually offered a partnership. Other notabilities who died that year were Jons Jacob Berzelius, the noted Swedish chemist, on whom the directors of the Swedish Iron Works conferred a pension for life; and Sir George Steuart Mackenzie, the mineralogist, who was famous for his experiments on the formation of steel by the combination of diamonds and iron.

In the year 1748 young James Cook, the circumnavigator, was a humble apprentice in a steamer engaged in the coal trade, but the beginning of his rise in life was when his employers ordered him home that year to assist in fitting a new ship, with the object of qualifying him for promotion.

There was born in 1748 Joseph Bramah, who was the inventor of the hydraulic press, which also owed something to Henry Maudslay, for Maudslay it was who invented the device by which the ram of the press was kept watertight within the cylinder, whatever the pressure. Bramah also invented boilers for steam engines.

*To-day it would be worth 35/- to £2.

Vive l'Export

Using this title, Birlec, Limited, of Tyburn Road, Erdington, Birmingham, have produced a Christmas booklet, which humorously—yet with considerable truth—gives advice as to how to promote exports. The division into three classes of foreign enquiries is really quite sensible, yet it can fail. Relating it to home business, here is a true story. A pompous old gentleman arrived at an exhibition and rapidly and methodically visited each stand. Here he left his card with the injunction to send details of everything available. Informal conferences of stand holders unanimously decided that the waste paper basket was the proper place for the old gentleman's *carte de visite*—except one. He got an order for £20,000's worth of machinery. Yet this is the exception which proves the rule that a sales manager can disregard nebulous enquiries sent on picture postcards. Those of our readers who have received *Vive l'Export* will agree that for a quarter of an hour's light reading it is excellent. We congratulate all those concerned with its production.

Foundry Conditions, Personnel and Production

[The Paper on this subject by Mr. R. Coates, of Ransomes & Rapier, Limited, has been printed in our last two issues. It was illustrated by lantern slides, charts of production factors, and a cinematograph film indicating measures taken to ensure foundry safety and hygiene.]

THE BRANCH PRESIDENT specially welcomed Mr. Coates as a prominent member of the London Branch, and as President of the East Anglian Section. The subject of his paper was one in which anyone working in any section of the foundry industry could take a very keen interest.

MR. COATES said that he fully appreciated the opportunity of speaking on matters which were of some importance to the foundry industry. Much attention had been given to the matter of foundry conditions over a period long before the setting up of the Garrett Committee, and the time had arrived when a more practical approach should be made toward the improving of the standard of conditions generally.

DISCUSSION

THE BRANCH PRESIDENT (Mr. E. M. Currie) commented that the Paper would cause those engaged in the industry, according to the various positions they held in it, to think more deeply than usual. There was no doubt that the national conscience had been stirred a little more vigorously than ever before concerning working conditions within the engineering industry; and where could foundrymen find more need for such whole-hearted attention to such matters than within their own part of the industry? No matter how good they considered their foundries to be, one must fairly admit that there was always room for improvement. How, particularly, could they expect the new and growing generation of boys to accept such conditions as those under which some of the older men had had to start? Naturally, improvements would cost time and money, particularly money; but that money must be spent, for if they could not maintain their labour force they might as well close down now instead of being forced to do so later on. No intelligent observer to-day would any longer deny that good working conditions inevitably meant happier personnel, that being the principal condition under which productivity could be increased.

MR. S. B. MICHAEL said that Mr. Coates had done the industry a signal service by underlining in practical form a very important problem—he used the term "in practical form" because the basic ideas were in everybody's minds—and by indicating ways and means of bringing these ideas to practical fruition. The Author had referred only incidentally to the fact that improvements and alterations as described had been effected at his particular concern during the period of shut-down due to fuel shortage, herein lay a point that struck at the heart of the problem. Most foundrymen were so busily engaged in their particular productions that it was always a difficult matter to break off and make radical alterations; and the finding of the necessary money was always a problem. The prosperity of the nation and of individual firms was very much bound up with this question. The situation must never occur again in which the industry yielded a miserable return to its proprietors and a bare living to its workers. Therefore, in the realisation of these ideals foundrymen must bear in mind everything they had learned in recent years concerning accurate costing and correct selling, to ensure the prosperity of the industry so that it might go forward with finances available with which to introduce the advances which were inevitable in factory working conditions.

Medical Services

MR. W. G. MOCHRIE felt that the matter of effecting improvements in the foundry had been regarded in the past as an ancillary activity of the foundry foreman, and that something should be done to put that position right. The plastering and painting of walls in suitable colours was a very good thing, but he pointed out in that connection that it was necessary to remove obstacles, a factor which was well brought out by the photographs Mr. Coates had shown. Emphasising the importance of adequate arrangements for medical attention in foundries, he said that a lot would depend, of course, on the size and location of each foundry. Medical examination and services should be provided, not only for those serving in the foundries, but also for applicants before they entered; and in the latter connection he said there was much scope for making friendly arrangements with a man's own doctor. That had been done in his experience. Again, in connection with a firm with which he had been associated, as long ago as 1934, arrangements had been made for medical examinations every three months, and those arrangements had paid good dividends. Finally Mr. Mochrie suggested that, inasmuch as the subject could not be covered adequately in one meeting, the discussion might be continued in the columns of the FOUNDRY TRADE JOURNAL.

Washing Facilities

MR. J. N. BURNS said there were some people who would spend £2,000 on a machine tool, but would seldom reach the point of spending £5 or so on auxiliary equipment; and even if they did, the equipment was very seldom kept in decent order. It was particularly interesting, therefore, to note, in the film which Mr. Coates had shown, the emphasis which was placed on the proper care of tools. He would like to see the appointment of more safety inspectors. Whilst emphasising the importance of baths and washing facilities generally, and other hygienic equipment, he admitted his experience had been

Foundry Conditions

that many workmen preferred to catch the 5.30 p.m. 'bus than to remain for a few minutes in order to wash before going home. There was also the habit of the Englishman to wear his old Sunday suit for work. In some countries, on the other hand, the workmen equipped themselves with proper clothes, into which they changed when they arrived at work; and at the end of the day they changed again into their normal clothes and left the works as respectable citizens. Some factories here had spent hundreds of pounds on sanitary equipment which was not used. If it were possible to educate the young and the old to utilise the equipment provided, the problem of recruiting labour for the industry would be eased.

The BRANCH-PRESIDENT, recalling an experience he had had some twenty years ago when washing facilities, and so on, had been introduced at a works with which he was associated, said that by the end of the first week he had lost so many towels and so much soap that it hardly seemed worth while going on. But he felt the real truth was that he had not given the matter sufficient thought. Instead of leaving loose towels and pieces of soap about, one could provide special fixtures containing liquid soap, and also arrange automatically dispensed roller towels. There was no doubt, he continued, that the education of the workmen would occupy a considerable time; executives should have to do it in this country by way of example and general education. He had felt that he would like to see a law passed which would not allow any heavy industry workman to board a public vehicle in his working clothes. Such a law had applied in Germany and one or two other Continental countries before the war. He believed that a slight measure of compulsion might be necessary first, in order to set an example, and before long the rest of the personnel would follow suit.

MR. W. WILSON, discussing washing facilities, said that two years ago his undertaking had installed shower baths and had provided for each man a towel for which he was solely responsible; each man was also responsible for his soap ration. The arrangement had continued with every success, and the towels were called in and checked periodically; if any were lost, they had to be replaced by the workers concerned. As a result, the men looked after the towels, and many of them took them home to be washed.

Utilising the Willing Horse

MR. A. R. PARKES, emphasising that the right contact between employers and workers was all-important, said that in any organisation there was usually one man who, due to his very likeable make-up, could command the respect of the management, the apprentices, and the workers generally. That very important man was usually given extra duties by the management because of his particular abilities in handling men, and he was usually overloaded by special jobs, routine jobs, and production jobs. Mr. Parkes suggested that such a man should be selected for liaison duty between the management and the men, concerned, even at the exclusion of other duties, solely with the provision of amenities and ensuring that those amenities were popularised among the workmen. Mr. Coates' lecture was particularly interesting, he concluded, because so much had been heard from time to time as to what should be done; mere platitudes were of little use, and the value of Mr. Coates' Paper was that he had shown several methods whereby recommendations made in the Garrett Report and in various addresses could be put into practice.

Ways and Means

MR. G. C. PIERCE (Past Branch President) said that for his own Presidential Address to the London Branch twenty-one years ago he had chosen the title "What is Wrong with the Foundry Industry?" and its purport was to improve the conditions in which operatives were working in the foundries. He had suggested certain remedies, such as the provision of proper gangways, and so on, and he had stressed particularly the need for the provision of washing facilities, commenting that it was not beyond the conception of any decent-minded man that the moulder should have facilities to take a bath after his work. He had felt at that time as though his was a voice in the wilderness, and he also assumed that Mr. Coates' advice would be abortive, for he realised that insufficient people were as yet making demands for the improvement of the conditions in which operatives worked in the foundry. References had been made to the cost, to the spending of a few thousands of pounds on a machine and forgetting the ancillaries; but the human element was worth more than the machine, and should be looked after accordingly. If it were a question of cost, then the industry might consider a percentage on selling prices to provide the money for the necessary amenities.

Welcoming the present trend to set up joint consultative committees in the works, Mr. Pierce expressed the belief that thereby the industry should get proper expressions of opinion from the people actually working on the foundry floor as to what was wrong, and possibly more improvement from that angle than from any other. It certainly behoved the employers to give close attention to the matter. It was all very well to give people technical education, but they would not remain in the foundries unless conditions were improved. It was due to the past conditions that we had not the type of men that were required in the foundries today.

He was happy to announce that the company with which he was associated had given some attention to the problem, and they had installed shower baths. There was no need to fear that the moulders would not use them.

A MEMBER, who described himself as one of the smaller fry in the foundry industry, asked if Mr. Coates could suggest ways in which the smaller founders could overcome difficulties such as lack of

space and the inability to obtain the necessary permits for the provision of improved amenities for the workers.

Mr. COATES admitted that the position of the smaller foundry was a difficult one, and quite frankly he did not know off-hand just how the difficulty could be overcome. Obviously, it would not be an economic proposition to instal elaborate bathing facilities, and so on, even if the space were available. He had indicated in the paper that this matter calls for the consideration of each concern in the light of its own domestic needs and circumstances. Mr. Coates emphasised that in his view the matter of initial importance was the focussing of attention upon the improving of conditions within the foundry itself.

THE BRANCH PRESIDENT said it looked as though the London Branch had really started something, for Mr. Pierce had dealt with the matter in his Presidential Address twenty-one years ago, and Mr. Coates had now given a paper; he hoped they would not have to wait another twenty-one years before anything further was done.

Vote of Thanks

MR. J. R. BOOTH, JUNR., proposing the thanks of the meeting to Mr. Coates, said he had introduced something very topical, and had dealt with the subject very creditably, putting the problems forward in a new light. The Paper and discussion had been extremely interesting.

MR. B. LEVY, seconding, said systems of costing such as he had seen before the war, where castings were priced at so much per cwt., of any size and weight, would not permit of such improvements as had been discussed that evening. There was much food for thought in the practical suggestions Mr. Coates had offered. One would have liked to have heard more from him, however, as to how building permits could be obtained. He himself had tried to obtain a permit to do a little whitewashing and to have a small lavatory installed, but was still waiting, after three months. In view of the prosperity of the foundry industry generally, he believed it was generally accepted that most decent employers would willingly effect all the improvements within their power, were the permits forthcoming. Many foundries had not the space available for expansion, whereby they could provide amenities which would make the industry attractive.

The vote of thanks was carried with acclamation.

MR. COATES, after thanking the meeting for the reception accorded to his Paper, said joint consultation had a vital part to play, which involved a contribution from all levels, and much could be achieved in foundries through the shop committees.

The economic factor was an important one, but as indicated in the Paper, the investigation work of the National Institute of Industrial Psychology had shown that increased production had followed in the wake of consideration of the needs of the worker, through the establishing and maintaining of good standards in physical and mental environment.

Mr. Coates agreed that the Institute had a great potential in assisting foundries in the matters which had been under review that evening. It had, indeed, already done some excellent work in this direction through the establishing of the F. J. Cook award, and, furthermore, the Institute had been prominent on the Garrett Committee. In that connection, Mr. Coates particularly mentioned Mr. John Gardom, a Past-President of the Institute, who had occupied a position on that Committee as Technical Adviser.

Mr. Coates added that since he had prepared his Paper, his company had been experimenting with the painting of the steelwork. Parts of two girders had been painted with aluminium paint, in order to determine how the paint would stand up to foundry conditions.

A vote of thanks was accorded the lanternist, Mr. P. Ellis, and also the cinematograph projector operator, who was a recently recruited member.

Intergranular Corrosion of Cast Austenitic Stainless Steels

At the recent Paris symposium on corrosion held by the *Société Française de Métallurgie*, one of the outstanding contributions was a Paper by Mr. H. A. Pray, of the Battelle Memorial Institute, Columbus, Ohio, on intergranular corrosion of cast austenitic stainless steels. The results of tests to find the susceptibility to intergranular corrosion of cast alloys of the 19 per cent. Cr, 9 per cent. Ni type showed that this susceptibility resulted from carbide precipitation at the primary grain boundaries. Carbide precipitation in the ferritic phase, which was present in many alloys within the composition range investigated, did not cause susceptibility. The presence of ferrite pools in an austenite matrix suppressed this tendency, because the carbides were precipitated within the ferrite phase in preference to the austenite grain boundaries when the quench-annealed material was subjected to temperatures within the precipitation range.

By relatively small adjustments of the chromium, nickel, nitrogen, silicon and carbon contents, sufficient ferrite can be produced in the quench-annealed alloys to suppress greatly, and in some cases practically eliminate, the tendency toward intergranular corrosion, which would otherwise result from heating to carbide precipitation temperatures.

The presence of a ferritic constituent in alloys of this type is distinctly detrimental to their forging and rolling properties, but for use in the cast form, the amount of ferrite necessary to minimise or prevent intergranular susceptibility is not detrimental to either physical or corrosion properties. On the contrary, it appears to be a beneficial and desirable constituent.

Susceptibility to intergranular corrosion can also result from inadequate carbide solution or quench-annealing treatments. The minimum quenching temperature necessary to fully dissolve carbides is dependent largely upon the carbon content, and varies from about 1,400 to 2,300 deg. F. (760 to 1,260 deg. C.).

Scottish Foundry Provides Amenities

Recently, the Rt. Hon. Arthur Woodburn, M.P., Secretary of State for Scotland, visited the works of Smith & Wellstood, Limited, of Bonnybridge, for official participation in a ceremony to mark the opening of a complete changing, washing and bathing service for the foundry operatives. The firm employs about 1,200 workers in the production of the well-known Esse cookers and heating stoves.

A Well-thought-out Scheme

The foundry baths will, it is hoped, also help to reduce the incidence of ill-health among heavy workers, who will no longer leave their work, and perhaps travel considerable distances by 'bus, in soiled and sweat-stained clothing. This is particularly important in

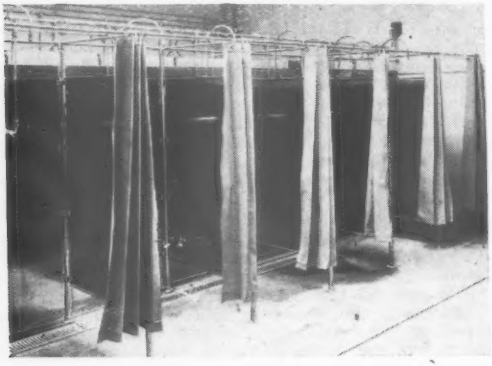

FIG. 1.—VIEW OF THE SHOWER-BATHS, SHOWING THE STAINLESS-STEEL PANELS AND CHROMIUM-PLATED FITTINGS.

summer, when there is rapid evaporation of the moisture in sweat-soiled clothing. The foundry baths are adjacent to the moulding shops. When the moulder finishes for the day, he first cleans the moulding sand from his boots by using one of a battery of electric brushing machines at the entrance to the baths. In the dressing room an attendant hands him his outdoor clothes, which he takes to a cubicle, where he removes his working clothes and places them in a numbered wire-frame basket, which is hung on an air-conditioned rack. The clothes are aired and dried overnight and returned to him next morning. Having got rid of his soiled clothes, he then goes into the shower room and has a thorough wash under one of the hot and cold sprays. Then, after drying himself, he can, if he wishes, return to the dressing room by way of the solarium, which is equipped with twelve Hanovia sun-ray lamps. During the winter the tonic effect of this treatment will be particularly beneficial to general health. Back again in the dressing room, he puts on his outdoor clothes and leaves the foundry feeling clean and refreshed.

Expert Attendance

Provision has been made also for dealing with strains, racks and similar ailments. Manipulative treatment will be administered by the bath-master, R. Shankly, who is a former Scottish football international and ex-assistant trainer of Falkirk football club. The washing installation is comprised of hot and cold showers, shown in Fig. 1, and Bradley circular fountains.

The entire installation has been designed on the most modern lines. Stainless-steel panels and chromium-plated fittings have been used in the shower room, which has a striking glass-domed roof.

The cubicles in the dressing rooms are finished in coloured Perspex with chromium-plated fittings and green waterproof curtains. The baths are lit by a modern fluorescent lighting system and they are air-conditioned throughout. Every-day management has been entrusted to a committee of four workers and one member of the works' management. The nominal membership fee of 1s. per week includes provision of soap and for laundering of towels. Many families and friends of Smith & Wellstood's employees took advantage of the firm's invitation to attend a preview of the baths. The wives of the workers in particular were impressed by the excellent amenities, and many favourable comments were made on the modern and attractive installations.

British Standard Glossary

The British Standards Institution has recently published under B.S. 1420:1947 a Glossary of Terms Applicable to Wrought Products in Copper and Zinc, Brass and Other Copper Alloys. The glossary is based on proposals submitted by the British Non-Ferrous Metals Federation, which had taken steps to obtain representative views from the trade interests concerned. The definitions have been related throughout to current commercial practice and due consideration has been given to Customs' definitions. These factors have necessitated the omission of certain terms and the drafting of several of the definitions in a manner less precise than is usual in British Standards.

The scope of the glossary has been limited to wrought products, but it is hoped that further sections will be published in due course covering raw materials, cast shapes and, possibly, certain fabricated products. Although the terms have been defined in relation to copper alloys and zinc, it is appreciated that the issue of the glossary as a British Standard will have an indirect effect on the terminology used for other metals and alloys. The Institution will appreciate any comments on the possible extension of the scope of the glossary or on the publication of separate sections to cover terms used in relation to other non-ferrous metals. Copies of the above British Standard Glossary can be obtained from Sales Department, 24, Victoria Street, S.W.1. Price, 2s. post free.

House Organs

The Stantonian, December, 1947.

Published by the Stanton Ironworks Company, Limited, near Nottingham.

The reviewer confesses that he was more interested in the Stanton Welfare Supplement which arrived as an enclosure than in the actual magazine, as it discloses in a unique manner what the man in the shop is thinking about his working conditions. As an interesting commentary on the cost of amenities, Mr. P. H. Wilson reported that the works had received an estimate of £25,000 for the construction of 17 new lavatories. That is, each W.C. would cost as much as a pre-war villa, including a bathroom and modern lavatory accommodation.

"600" for Christmas, 1947.

Published by the "600" Group of Companions, Cunard Works, Chase Road, London, N.W.10.

The reviewer has some recollections of a music-hall ditty, the chorus of which went "Let's be nice and naughty." This number well merits both these adjectives. The "nice" parts include a domestic story of the presentation to Mr. Lawrence Levy of his portrait by the staff and the early history of the Kryn and Lahy steelfoundry by Mr. F. W. Rowe. The latter was of particular interest to the reviewer, as he participated in the launching. It is not proposed to comment on the "naughty" beyond saying the reviewer quite likes naughtiness so long as it is funny! Of interest to our readers on the strictly business side is the fact that the Selson Machine Tool Company, Limited, Abbey House, Victoria Street, London, S.W.1, have been appointed agents for Cleveland die-casting machines.

Steel Horizons, Vol. 9, No. 4.

Published by the Allegheny Ludlum Steel Corporation, Pittsburgh, U.S.A.

This is still the "best dressed" house organ we regularly receive. The front cover, brilliantly executed, symbolises the fields of America provisioning Europe. It is perhaps a little disappointing that the unending stream of flour bags terminates in the Central European corn belt. This magazine always gives a look round industries or projects which utilise stainless steel, and it does it magnificently.

Meehanite, Vol. 1, No. 2.

Published by the Meehanite Metal Corporation, Pershing Square Building, New York State, U.S.A.

This issue is an excellent example of group publicity. The seven articles are of major interest to engineers. They describe and illustrate both specialised and general applications of Meehanite metal—wind-tunnel components exemplifying the former and carbide-tipped tool shanks the latter. The reviewer is not greatly impressed with the lay-out except of the centre leaves. The others show overcrowding, whilst there is a clashing of styles in the headlines.

New Catalogues

Creep Resisting Steels. A catalogue bound with a wire spiral and nicely jacketed in stiff paper has been sent to us by Colvilles, Limited, of 195, West George Street, Glasgow, C.2, covering a wide range of creep-resisting steels. The design on the front cover is very pleasing, but the red lettering appears to the reviewer to be a little too dull. After all, black-out conditions are officially finished; designers are still apparently shy of using brilliant colouring. The range covered is designated Colmo, and the brochure opens with an excellent description of the purpose of the steels, followed-up by a well-illustrated account of the testing equipment used to evaluate their properties. A little more care should have been given to the line blocks, to make on reproduction a uniformity of size of lettering. The table of permissible working stresses presents really valuable data to the engineer, whilst the properties of the range of steels from the plain carbon variety right through to the vanadium-molybdenum type are bound to be appreciated by users. The engineers amongst our readers should certainly procure a copy of this catalogue, as it is a worth while addition to any library of trade or technical literature.

V. C. F.

metals, metallic alloys, carbides—Murex Limited, of Rainham, Essex, have issued a 16-page booklet which details the specifications and typical analyses of a number of the rarer foundry alloys and metals such as tungsten, columbium, and the like. It is a really useful publication and well worth a permanent place in firms' files.

Publications Received

The Second Annual Report of the Motor Industry Research Association. Published by the Council from Great West Road, Brentford, Middlesex.—Work on the fatigue strength of crankshafts is still continuing. Most work has been carried out on 4-in. dia. cast material, but smaller shafts were found to be appreciably stronger. Future work is to be carried out on 2-in. components, and in connection with this a torsional fatigue testing machine is being designed.

Industrial Association of Wales and Monmouthshire. Published from Aberdare House, Mountstuart Square, Cardiff.

This booklet outlines the aims of the Association and includes an alphabetical list of its four hundred-odd members. As a work of reference it is a very useful publication.

Z.D.A. Abstracts. Published by the Zinc Development Association, Lincoln House, Turl Street, Oxford.

Some 60 abstracts of current articles are given in the November issue. They have been very well done and for those interested in die-casting it is useful to learn that the original articles are available for inspection at the association's library.

Pig-iron and Steel Production in Great Britain

The following particulars of pig-iron and steel production in Great Britain have been extracted from the Statistical Bulletin for November, 1947, issued by the British Iron and Steel Federation. Table I gives the production of pig-iron and ferro-alloys in October, with the number of furnaces in blast at the end of the month; Table II, production of steel ingots and castings in October, and Table III, deliveries of non-alloy and alloy finished steel. Table IV summarises activities of the steel industry during six months ended October, 1947.

TABLE I.—*Weekly Average Production of Pig-iron and Blast-furnace Ferro-alloys, October, 1947. (Thousands of tons.)*

District.	Furnaces in blast, 1.11.47	Hematite.	Basic.	Foundry.	Forge.	Ferro-alloys.	Total.
Derby, Leics., Notts., Northants, and Essex ..	24	0.7	12.8	21.4	1.5	—	36.4
Lancs. (excl. N.W. Coast), Denbigh, Flints. and Ches. ..	6	—	6.6	—	—	0.6	7.2
Yorkshire (incl. Sheffield, excl. N.E. Coast) ..							
Lincolnshire ..	13	—	22.3	—	—	—	22.3
North-East Coast	25	7.4	33.4	0.3	—	1.3	42.4
Scotland ..	8	0.7	8.3	2.4	—	—	11.4
Staffs., Shrops., Worcs. and Warwick ..	7	—	6.1	1.3	—	—	7.4
S. Wales and Monmouthshire	7	1.2	17.9	—	—	—	19.1
North-West Coast	7	14.2	—	0.2	—	—	14.4
Total ..	97	24.2	107.4	25.6	1.5	1.9	‡160.6
September, 1947	97	21.8	99.2	26.1	1.1	1.9	150.1
October, 1946 ..	99	21.0	105.0	24.9	1.6	3.3	‡155·8

TABLE III.—*Weekly Average Deliveries of Non-alloy and Alloy Finished Steels. (Thousands of tons.)*

Product.	1946.	1947 (1st 10 months).	1946.	1947.	
			Oct.‡	Sept.	Oct.‡
Non-alloy steel:—					
Heavy rails and sleepers	9.0	7.6	7.8	7.6	7.8
Heavy and medium plates	30.9	31.2	34.9	35.2	33.7
Other heavy steel products	31.9	31.6	35.5	32.4	32.8
Light rolled products (excl. wire rods and alloy steel bars) ..	48.9	49.3	54.2	51.8	57.2
Ferro-concrete bars	3.2	3.1	3.0	4.3	3.7
Cold-rolled strip ..	4.2	4.6	4.7	5.2	5.0
Bright steel bars ..	4.5	4.7	5.5	5.4	5.4
Sheets, coated and uncoated ..	22.4	24.0	24.8	24.2	25.3
Tin, terne and black plate	10.4	12.1	12.4	12.3	14.0
Tubes	14.0	13.0	15.4	14.1	14.7
Wire	11.8	10.7	12.4	11.3	11.5
Tyres, wheels and axles	3.4	3.3	4.1	3.5	3.6
Forgings	4.9	4.7	4.9	5.5	5.3
Castings	2.9	2.9	3.2	3.2	3.2
Total	202.4	202.8	222.8	216.0	223.2
Alloy steel†:—					
Plates	0.3	—	0.1	—	—
Tubes	0.2	0.3	0.2	0.3	0.4
Bars, sheets, strip and wire	2.9	3.6	3.4	3.9	4.5
Forgings	1.6	1.7	2.0	1.9	2.2
Castings	0.6	0.6	0.7	0.6	0.7
Total	5.6	6.2	6.4	6.7	7.8
Total production* ..	208.0	209.0	229.2	222.7	231.0
Less Intra-industry conversion ..	16.4	16.9	20.1	19.7	24.1
Total U.K. deliveries	191.6	192.1	209.1	203.0	206.9
Add Deliveries of imported finished steel	—	2.0	—	1.8	2.8
Total finished steel ..	191.6	194.1	209.1	204.8	209.7

* Includes finished steel made from imported ingots and semi-finished steel.
† Excludes high-speed steel.

TABLE II.—*Weekly Average Production of Steel Ingots and Castings in October, 1947. (Thousands of Tons.)*

District.	Open-hearth.		Bessemer.	Electric.	All other.	Total.		Total ingots and castings.
	Acid.	Basic.				Ingots.	Castings.	
Derby, Leics., Notts., Northants and Essex ..	—	—	(Basic) 9.5	1.3	0.3	10.6	0.5	11.1
Lancs. (excl. N.W. Coast), Denbigh, Flints. and Ches.	1.3	21.1	—	0.5	0.4	22.5	0.8	23.3
Yorkshire (excl. N.E. Coast and Sheffield)								
Lincolnshire	—	26.4	—	—	0.1	26.4	0.1	26.5
North-East Coast	1.9	52.9	—	0.7	0.4	54.5	1.4	55.9
Scotland	6.4	32.7	—	1.5	0.7	39.7	1.6	41.3
Staffs., Shrops., Worcs. and Warwick	—	13.1	—	0.6	0.7	13.1	1.3	14.4
S. Wales and Monmouthshire	7.9	42.8	(Basic) 4.5	0.8	0.1	55.8	0.3	56.1
Sheffield	8.8	22.6	—	7.0	0.6	37.4	1.6	39.0
North-West Coast	0.1	2.9	(Acid) 4.6	—	0.1	7.6	0.1	7.7
Total	26.4	214.5	18.6	12.4	3.4	267.6	7.7	275.3‡
September, 1947	29.1	203.0	18.5	12.1	3.4	258.6	7.5	266.1
October, 1946	24.5	198.2	18.1	10.3	3.2	247.0	7.3	254.3‡

‡ Five weeks.

(*Continued on facing page.*)

Platinum Metals in Industry

Research and Development Progress

Dr. Charles Engelhard, president of Baker & Company, Inc., New York, states that world demand for platinum metals was maintained at a high level during 1947, with United States consumption estimated at 375,000 oz., including approximately 200,000 oz. platinum and 150,000 oz. palladium. Although the United States was the largest consumer of platinum metals, industrial reconstruction in Europe required large quantities of these metals, he said. U.S. imports during the first 10 months of 1947 approximated 260,000 oz. of platinum metals in all forms, including 44,500 oz. in unrefined materials, mostly from Colombia. Imports of refined platinum metals included approximately 45,000 oz. of platinum and 63,000 oz. of palladium from Canada, 32,500 oz. of platinum and 36,500 oz. of palladium from Russia, and 18,500 oz. of platinum and 4,700 oz. of palladium from the United Kingdom.

Although most people thought of platinum and palladium and the other platinum metals in connection with jewellery, a large proportion of the available supply of these precious metals was used for industrial purposes because they reduced costs of production and maintenance, said Dr. Engelhard. The economic advantage of using platinum metals for critical parts of equipment was well recognised by producers of rayon, glass and electrical instruments, and manufacturers in other fields were giving increasing attention to the money-saving possibilities of platinum metals. The development and perfection of bi-metallic products comprising a base metal faced with platinum had enabled users to employ these precious metals to a better advantage.

The immediate demand for platinum and other platinum metals showed no sign of slackening. Research and development continued to find new applications for these metals which were assuming an important role in modern industry. "I do not believe there is a research laboratory of any importance anywhere which does not consider the employment of the platinum metals, particularly in their purest state, to reach that perfection in quality which eventually will lead to, and form the basis of, remarkable developments in industry."

Aluminium Developments in South Wales

A large foundry for the production of slabs and billets in aluminium alloys and a large rolling mill for the manufacture of aluminium sheets is being planned at Rheola Aluminium Works at Resolven, near Neath, by Tube Investments, Limited, who have secured a controlling interest in the South Wales Aluminium Company, Limited—a subsidiary of the Swiss Company Aluminium A.G.—at a cost of £2,000,000. Before the merger the two companies had planned separate schemes for establishing aluminium works in other parts of the country, but in view of the Government's request for a cut in capital expenditure the two schemes were merged and the final project will be established at Rheola. This will save about £1,500,000.

The scheme will mean employment for more than 750 persons and will increase the present output of the works from 8,500 tons to 40,000 tons per annum. Aluminium will be imported for this purpose. The works will have a floor space of 500,000 sq. ft., and will be equipped with the most modern machinery of British manufacture.

Heavy Demand for B.I.F. Space

There will be over 3,000 exhibitors, representing at least 87 United Kingdom industries at the 1948 British Industries Fair, which will be held simultaneously in London and Birmingham from May 3 to May 14. The demand for space has been exceptionally heavy, and both the London and Birmingham sections now have a waiting list of late applicants.

Total space applied for to date in the London section is 684,000 sq. ft., which compares with the total area of 531,000 sq. ft. available at the last Fair. That figure, however, will show a slight increase in 1948, due to an alteration in the space devoted to display features and in the rearrangement of gangways at Earl's Court. Despite this, and a cut of about 20 per cent. in the space asked for by accepted applicants, it has been necessary to place over 200 late applicants requiring over 47,500 sq. ft. on a waiting list.

PIG-IRON AND STEEL PRODUCTION IN GREAT BRITAIN (*Continued from previous page.*)

TABLE IV.—*General Summary of Pig-iron and Steel Industry.* (*Weekly Averages in Thousands of Tons.*)

Period.	Iron-ore output.	Imported ore consumed.	Output of pig-iron and ferro-alloys.	Scrap used in steel-making.	Steel (incl. alloy).			Steel stocks.*
					Imports.	Output of ingots and castings.	Deliveries of finished steel.	
1938	228.1	89.2	130.0	117.9	16.2	200.0	—	—
1946	234.1	115.4	149.3	147.0	8.3	244.1	191.6	1,223.9
1947—May	213.9	124.0	141.9	149.5	12.3	243.9	197.8	871.3
June	222.7	125.2	144.3	157.6	7.6	254.0	213.2	865.6
July‡	209.7	123.6	143.5	128.9	7.1†	211.7	183.1	855.2
August	206.8	127.6	147.2	138.7	5.5	234.2	177.6	816.1†
September	229.2	129.6	150.1	161.5†	8.0	266.1	204.8	800.4†
October‡	226.3	144.5	160.6	166.4	5.1	275.3	209.7	782.0

* Stocks at the beginning of the years and months shown. † Revised. ‡ Five weeks.

News in Brief

AN INDUSTRIAL ESTATE for light engineering is to be set up at Cappielow, Greenock.

THE NAME OF Dualloys, Limited, Chard, Som, has been changed to Dualloys Realisation, Limited.

FOREIGN BUYERS of textile machinery last year paid more for Lancashire plant than in any year other than 1921.

CENTRAL METAL WORKS, LIMITED, 7, St. Stephen's Avenue, Bristol, have changed their name to Severn Engineering, Limited.

COWANS, SHELDON & COMPANY, LIMITED, ironfounders, engineers, etc., of Carlisle, are to grant a bonus to their employees to mark the company's centenary.

TWO MORE COASTERS are to be built by the Caledon Shipbuilding & Engineering Company, Limited, Dundee, for the Clyde Shipping Company, Limited.

THE 2,016TH LOCOMOTIVE built at the L.N.E.R. Doncaster works has been officially named "A. H. Peppercorn," after its designer, who is chief mechanical engineer of the L.N.E.R.

THE 10-FT. MILL of the Appleby-Frodingham Steel Company, Limited, created a new output record recently by producing 4,467 tons in seven days. This beats the previous record by 262 tons.

PRESENTATIONS WERE MADE to old employees of Edgar Allen & Company, Limited, steel manufacturers, of Sheffield, by Mr. W. H. Higginbotham, chairman, at a Christmas dinner in the works canteen.

C. A. PARSONS & COMPANY, LIMITED, Newcastle-upon-Tyne, have completed a 120-ton electric stator for the White Bay power station, Sydney. The stator is the biggest yet made by the company for export.

NEW METALS & CHEMICALS, LIMITED, 16, Northumberland Avenue, London, W.C.2, have been appointed sole distributors for the United Kingdom for calcium metal produced by Dominion Magnesium, Limited.

THE BRITISH GAS COUNCIL announces that, in view of the sustained interest in "Publicity Parade," which depicts the publicity services of the Council, the exhibition at Gas Industry House will remain open until January 31.

EXTENSIVE DAMAGE to offices, canteen and warehouses was caused by a fire at the works of the Scottish Central Iron Company, Limited, Falkirk, on December 27. None of the working machinery was affected and arrangements were made to carry on as usual.

HARLAND & WOLFF, LIMITED, are to build at their Glasgow yard a motor oil tanker of 12,200 tons d.w. for Norwegian owners. With this addition, Clyde firms are now building 30 large tankers—17 for British owners, 11 for Norwegian, and two for Panamanian.

THE DIRECTORS of the Hill Top Foundry Company. Limited, Wednesbury, are issuing privately 15,000 5 per cent. redeemable cumulative preference shares of £1 each at par in order to finance the rapidly increasing turnover and capital expenditure on new machinery.

THE BRITISH ALUMINIUM COMPANY, LIMITED, announce that their Midland warehouse at 17-18, Providence Street, Cradley Heath, Staffs, is now in full operation. The company's Midland branch office remains at Lansdowne House, 41, Water Street, Birmingham.

CONVERSIONS OF STEEL FURNACES at the Cargo Fleet and West Hartlepool plants of the South Durham group to oil firing have yielded such satisfactory results that the company has decided, subject to the Government's sanction, to convert the whole of the West Hartlepool steel plant to oil firing.

SHAREHOLDERS OF B. Finch & Company, Limited, sanitary and heating engineers, are to be asked to approve the increase of the company's capital to £220,000 by the creation of an additional 100,000 6 per cent. cumulative preference shares of 10s. each and 500,000 ordinary shares of 2s. each.

Increases of Capital

Details of increased capital have been announced by the following companies:—

Skinningrove Iron Company, Limited, Carlin How, Yorks, increased by £375,000, in £1 ordinary shares, beyond the registered capital of £900,000.

S.X. Tool & Engineering Company, Limited, Pound Lane, Laindon, Essex, increased by £16,000, in £1 shares, beyond the registered capital of £500.

W. & N. (Engineering) Company, Limited, 80-82, Uxbridge Road, Ealing, London, W.13, increased by £1,900, in £1 shares, beyond the registered capital of £100.

Ibbett Engineering Company, Limited, Stanley Works, Ampthill Road, Kempston, Hardwicke, Beds, increased by £9,900, in £1 ordinary shares, beyond the registered capital of £100.

Joint Inventors Trust, Limited, engineers, etc., of 9, Basinghall Street, London, E.C.2, increased by £2,000, in 4,000 ordinary shares of 10s., beyond the registered capital of £8,000.

Thomas R. Davison, Limited, manufacturers of copper and other boilers, cylinders, etc., of Corty Road, Bridgend, increased by £1,000, in £1 shares, beyond the registered capital of £2,000.

Mervyn Temple Rouleau Turner, Limited, general engineers, etc., of 25, Shoot-up Hill, Cricklewood, London, N.W.2, increased by £5,000, in £1 ordinary shares, beyond the registered capital of £5,000.

Redler Equipment, Limited, manufacturers of conveyor and other machinery, etc., of 177, Regent Street, London, W.1, increased by £110,000, in 55,000 5½ per cent. cumulative redeemable preference shares of £1 and 275,000 ordinary shares of 4s., beyond the registered capital of £110,000.

Institute of Metals' Elections

Dr. Desch and Sir John Greenly to be Fellows

Dr. Cecil Henry Desch, F.R.S., and Lt.-Col. Sir John Henry Maitland Greenly have been elected Fellows of the Institute of Metals in recognition of their eminent service to the Institute.

Prof. Pierre Antoine Jean Chevenard, Prof. Sir Geoffrey Ingram Taylor, F.R.S., and Dr. John Fairfield Thompson have been elected honorary members in recognition of their distinguished services to the science or practice of non-ferrous metallurgy.

Dr. Desch was appointed a director of Richard Thomas & Company, Limited, in 1943, to direct the research and development activities of that firm, but, on the amalgamation of the company with Baldwins, Limited, in 1945, he resigned his directorship and has since been associated with the Whitehead Iron & Steel Company, Limited. He was president of the Institute of Metals from 1938 to 1940. Dr. Desch was elected a Fellow of the Royal Society in 1923, was president of the Faraday Society from 1926 to 1928, and has been president of the Iron and Steel Institute since 1946. He was awarded the Institute of Metals (platinum) medal in 1941; the Bessemer gold medal of the Iron and Steel Institute in 1938; and received the honorary LL.D. degree of Glasgow University. He was recently elected a corresponding member of the French Academy of Science.

Sir John Greenly was Assistant Controller of Inspection of Munitions of War at the Ministry of Munitions from 1916 to 1919. In 1920 he was appointed joint managing director of William Foster, Pascoe, Grenfell & Company, copper manufacturers and smelters, of London and Swansea, and subsequently joint managing director of British Copper Manufacturers, Limited. He joined the board of Babcock & Wilcox, Limited, in 1929, and became chairman of the executive committee and deputy chairman of the company in 1932, and chairman in 1937. He is also a director of other companies. Since 1937 Sir John has been chairman of the British Non-ferrous Metals Research Association. He has also held numerous other positions of eminence in the fields of science and industry, including a number in connection with the utilisation of fuel. He was president of the Institute of Metals from 1942 to 1944, and is also a past-president of the Institute of Fuel, the Institution of Engineering Inspection, and the Combustion Appliance Makers' Association (Solid Fuel). In 1946 he was awarded the Institute of Metals (platinum) medal in recognition of his outstanding services to the industry. As a past-president he remains a member of the Council.

Prof. Chevenard was born at Thizy, in the Département du Rhône. He has been responsible for a great deal of research work on nickel-chromium steels and in the course of this study he designed and made the large range of instruments which will always be associated with his name. With these instruments Prof. Chevenard investigated the effects of the transformations in a very large number of special steels, more especially nickel-steels with or without additions of chromium, tungsten, cobalt, copper and other elements, over a range of temperature between —195 deg. and 900 deg. C. He further studied the effect of heat-treating these steels on their resistance to stress-corrosion, both in liquids and gases, and also on their fatigue properties. Another application of his work lay in the field of horology, where he introduced a variation of Elinvar for use in the balance-wheel springs of chronometers.

Prof. Sir Geoffrey Taylor was engaged in work on the dynamics of explosions during the second world war. He was a member of the Civil Defence Research Committee and of the Ministry of Supply Advisory Council. Near the end of the war he was in New Mexico, where he was one of the team which made the atomic bomb and was present when the first one was tested. Since the war he has again become interested in the plasticity of metals.

Dr. J. F. Thompson was born in the United States. On leaving Columbia University, where he had been an assistant in metallurgy, he joined the International Nickel Company in 1906, to develop the company's first research laboratory at the Orford Works. From 1906 to 1918 he was in charge of all research and technical activities on Monel metal and malleable nickel, and was head of all field and outside plant operations. He established, and became manager of, the firm's first technical department, which was a forerunner of the company's present development and research division, and in 1921 was appointed manager of operations, and was the executive responsible for the Huntington Works at Huntington, W.Va. He became assistant to the president, and has been executive vice-president of the International Nickel Company of Canada, Limited, since 1935. Dr. Thompson is a past-president of the Mining and Metallurgical Society of America, and a member of the American Institute of Mining and Metallurgical Engineers, and of the American Society for Testing Materials. He is a member of the Advisory Committee on Metals and Minerals of the National Research Council.

British Exhibition at Copenhagen

An exhibition of British goods will be held in Copenhagen from September 18 to October 3, 1948. The aim of the exhibition, which is being organised by the British Import Union of Copenhagen in consultation with the Federation of British Industries, and with the approval of the British and Danish Governments, is to encourage export trade to the Scandinavian and neighbouring markets.

Potential exhibitors can obtain further information from the London office of the Copenhagen Exhibition, Earls Court Exhibition Building, S.W.5.

AVERAGE STEEL OUTPUT during the first half of December was equivalent to a rate of 14,300,000 tons a year, the British Iron and Steel Federation has announced. This is the highest ever recorded for the first half of December.

New Year Honours

Awards to Industrialists and Scientists

Many awards to people associated with the iron and steel and allied industries were announced in the New Year Honours List. Brief notes on some of the honours are given below.

Barons

SIR VALENTINE GEORGE CRITTALL, for political and public services. A former Labour M.P., Sir Valentine is chairman and managing director of the Crittall Manufacturing Company, Limited, and chairman of Crittall-Hope Metal Windows (South Africa), Limited (of which he is also a member of the London committee), Darlington & Simpson Rolling Mills, Limited, and Darlington Rolling Mills, Limited.

COL. THE RIGHT HON. SIR (DAVID) JOHN COLVILLE, Governor of Bombay, 1943-47. He was formerly a director of David Colville & Sons, Limited, and other steel and engineering companies.

Knights Bachelor

COL. ERIC GORE BROWNE, chairman of the Southern Railway Company since 1944. He is a member of the Central Electricity Board.

MR. JOHN DOUGLAS COCKCROFT, F.R.S., director, Atomic Energy Research Establishment, Ministry of Supply.

MR. VINCENT ZIANI DE FERRANTI, chairman and managing director of Ferranti, Limited.

MR. PHILIP BULMER JOHNSON, president of the Engineering and Allied Employers' National Federation. He is a director and general manager of R. & W. Hawthorn, Leslie & Company, Limited, marine engineers, shipbuilders, etc., of Newcastle-upon-Tyne.

MR. CHARLES GARONNE RENOLD, chairman of the British Institute of Management. He is chairman of the Renold & Coventry Chain Company, Limited.

MR. HENRY RALPH RICARDO, LL.D., F.R.S., chairman and technical director of Ricardo & Company, Engineers (1927), Limited.

MR. RICHARD VYNNE SOUTHWELL, F.R.S., Rector of the Imperial College of Science and Technology, University of London.

ORDER OF THE BRITISH EMPIRE

K.B.E.

SIR JOHN FORSTER, K.C., president of the Industrial Court.

C.B.E.

MR. G. L. H. BROUGH, Deputy Director of Electrical Engineering, Admiralty; MR. E. G. CLARK, secretary of the Institution of Civil Engineers; MR. W. J. DAWSON, late'y metallurgical director, Hadfields, Limited, Sheffie'd; MR. LINCOLN EVANS, general secretary, Iron and Steel Trades Confederation, and a member of the Iron and Steel Board; MAJOR F. B. HALFORD, chief engineer and a director, De Havilland Engine Company, Limited; MR. R. G. HOSKING, chairman, East Midlands Regional Committee, Engineering and Allied Employers' Federation; DR. W. KERR, Emeritus Professor of Civil and Mechanical Engineering and Applied Mechanics, Royal Technical College, Glasgow.

MR. R. O'F. OAKLEY, assistant secretary, Department of Scientific and Industrial Research; MR. H. E. PARKES, member, Panel of Representatives of Employers, National Arbitration Tribunal; MAJOR A. A. ROSS, chief technical adviser to the Director of Engine Research and Development, Ministry of Supply; MR. T. M. SERVICE, a director of William Beardmore & Company, Limited, Glasgow; MR. D. L. WALKER, general secretary, Federation of British Industries; MR. J. P. WATSON, special director and manager, fire-control drawing office, Vickers-Armstrongs, Limited, Crayford.

O.B.E.

MR. W. C. CRAWFORD, engineer manager, Harland & Wolff, Limited, Glasgow; MR. E. CURRAN, a director and general manager, Curran Steels, Limited, Cardiff; MR. R. N. DOREY, manager, Hucknall Division, Rolls-Royce, Limited; CAPT. G. E. T. EYSTON, member, Southern Regional Board for Industry; MR. D. H. KYLE, managing director, British Iron & Steel Corporation (Ore), Limited; MR. S. R. NEVILLE, managing director, British Ropes, Limited; MR. W. G. POOLE, works manager, W. H. Allen Sons & Company, Limited, Bedford; MR. F. A. RUDDOCK, Professor of Chemistry and Metallurgy, Royal Naval College, Greenwich.

M.B.E.

MR. H. J. ALLWRIGHT, scientific officer, Ministry of Supply; MR. A. H. BELL, senior experimental officer, National Physical Laboratory, D.S.I.R.; MR. A. BENNETT, general secretary, National Union of Stove, Grate and General Metal Workers; MR. A. C. BRIDGE, production engineer and works manager, Crittall-Luxfer Aluminium Windows, Limited, Colwick; MISS D. H. CHUBB, assistant establishments officer, British Iron and Steel Federation; MR. W. R. DUNCAN, for services as production superintendent, David Brown & Sons (Huddersfield), Limited; MR. L. I. FARREN, technical assistant, General Electric Company, Limited, Wembley; MR. S. H. FLEMING, for services as Irish auditor for the Boilermakers, Iron and Steel Shipbuilders' Society; MR. H. M. MYERS, production manager, Imperial Chemical Industries, Limited, Metals Division; MR. G. A. SAWBRIDGE, manager, Naval Shop, Coventry Gauge & Tool Company, Limited; MR. R. R. WHYTE, assistant superintendent, gas-turbine department, Metropolitan-Vickers Electrical Company, Limited.

A CONTRACT for two 7,000-ton ore-carriers for the Alcoa Steamship Company, of New York, has been brought to Tyneside by Mr. H. B. Robin Rowell, chairman of R. & W. Hawthorn, Leslie & Company, Limited, who has just returned from the United States. The company will also construct the propelling machinery. This is the first order for many years to be placed on the Tyne by American owners.

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Personal

MR. A. HORNER has been appointed general manager of the Darlington & Simpson Rolling Mills, Limited.

MR. H. BUTTERWORTH has been appointed managing director of the Edison Swan Electric Company, Limited.

MR. J. N. BUCHANAN and MR. T. ROBBINS have resigned from the board of the Rio Tinto Company, Limited.

MR. W. FORD has been elected to the board of Platt Bros. & Company, Limited, textile and general engineers, of Oldham.

MR. A. C. YEATES has been appointed a director of Crossley Bros., Limited, Diesel and gas-engine manufacturers, etc., of Manchester.

SIR JOHN GREAVES has been appointed an additional director of Ruston & Hornsby, Limited, engineers, boilermakers, etc., of Lincoln.

MR. H. G. STAFFORD, who has been general works manager of the Slag Reduction Company, Limited, for the past 10 years, has been elected a director of the company.

MR. A. F. DIXON, chief engineer of the Brightside Foundry & Engineering Company, Limited, Sheffield, who retired last week, received a presentation to mark the occasion.

MR. H. S. MCCALLUM, secretary of Bairds & Dalmellington, Limited, has resigned from that position as from December 31. MR. J. M. LEITHEAD has been appointed in his place.

MR. LEONARD HARPER, a director of Horseley Bridge & Thomas Piggott, Limited, since 1938, and London manager for 23 years, has retired after 43 years' service with the company.

MR. HAMISH JOHNSTON, mill manager with the Cargo Fleet Iron Company, Limited, is leaving Tees-side to take up a similar appointment with the Briton Ferry Steel Company, Limited.

MR. A. G. COLLEY has relinquished his directorships of the Parkinson Stove Company, Limited, and Monitor Engineering & Oil Appliances, Limited, owing to pressure of other business.

MR. FRANK HODGES, a director of George Depledge & Company, Limited, structural engineers, iron and steel stockholders, etc., of Leeds, is retiring after 53 years' association with the company.

MR. THOMAS WILLIAM MELLING, who, as reported in our last issue, has retired from the position of works manager of Hadfields, Limited, Sheffield, has received a number of presentations to mark the occasion.

MR. M. WARREN, works manager of the Central Marine Engine Works of William Gray & Company, Limited, West Hartlepool, has received a presentation on the occasion of his retirement. He has been with the company for 53 years.

MR. J. W. BELL, who, since 1915, has managed the Newcastle-upon-Tyne office of Gent & Company, Limited, manufacturing electrical engineers, of Leicester, has retired after 43 years' service. He is succeeded by MR. W. H. SKINNER, who has been Mr. Bell's assistant since 1920.

MR. HENRY MAIN, managing director of the Caledon Shipbuilding & Engineering Company, Limited, Dundee, has been made a Commander of the Order of the Orange Nassau in recognition of his wartime services to the Royal Netherlands Navy in repairing Netherlands submarines based in Dundee.

MR. W. S. RUGH has retired from the boards of Henry Gardner & Company, Limited, metal merchants, etc., of Leadenhall Avenue, London, E.C.3, and Amalgamated Metal Corporation, Limited. In his place MR. R. E. STAVERT, president of the Consolidated Mining & Smelting Company of Canada, has been elected to the boards of both companies.

DR. H. W. H. WARREN has been appointed managing director of Associated Electrical Industries, Limited. He retains his seat on the board of the British Thomson-Houston Company, Limited, but relinquishes the managing directorship, being superseded in that position by MR. ERIC H. BALL. Mr. Ball was elected to the board of the B.T.-H. Company in 1944, and appointed deputy managing director at the end of 1946.

MR. ARTHUR WHITELEY has relinquished his position as Controller of Foundries and Forges with the Metallurgy (Ferrous) Branch of Industry in the British zone of Germany. During the past few years he has had about 600 foundries under his supervision. These foundries are now largely automonous. Before leaving for Germany Mr. Whiteley was managing director of the Glanmor Foundry Company, Limited, Llanelly, and Thomas Clement, Limited, Morfa Engineering Works, Llanelly. Earlier he was associated with Ley's Malleable Castings Company, Limited, Derby, for some 13 years.

Wills

WEAVER, W. C. W., chairman and late managing director of Waygood-Otis, Limited £20,949

OPPERMAN, O. R., managing director of Opperman Gears, Limited, Albemarle Way, London, E.C.1. ... £16,387

CARRICK, RICHARD, late managing director of Carrick & Foster, Limited, ironfounders, of Bingley, Yorks £10,350

WALKER, R. S. S., for 35 years with Oil Well Engineering Company, Limited, Cheadle Heath, Stockport, Ches £4.164

SCOTT, W. P., a representative of E. Green & Son, Limited, fuel-economiser makers and ironfounders, of Wakefield £2,352

SOUTHALL, LEONARD, a managing director of Hudson, Edmunds & Company, Limited, tube manufacturers, of Birmingham £224,064

BENCE, E. H., managing director of Ham, Baker & Company, Limited, engineers and foundrymen, of Langley Green, near Birmingham £9,971

ELWELL, H. A., for many years secretary of Henry Meadows, Limited, manufacturers of petrol and Diesel engines, etc., of Wolverhampton £5,030

WHITING, W. R. G., of Newcastle-upon-Tyne, naval architect and engineer, late Warship Production Superintendent, East Coast of Scotland, general manager of Sir W. G. Armstrong Whitworth & Company, Limited, 1928-34 ... ... £10,998

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Efficient insulation can permit greater output—lower production costs — improved furnace control and better operating conditions.

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Raw Material Markets

Iron and Steel

The position in regard to raw-material supplies is not too reassuring; particularly is this so in the case of pig-iron. The light foundries, which use almost entirely high-phosphorus pig-iron, together with cast-iron scrap, are short of supplies. In addition, many users could undertake considerable export business, as the demand for builders' castings, etc., for the home industries is not so pronounced. The engineering, jobbing, and speciality foundries are also extremely active, many of them being already engaged on high-duty castings for machinery, tools, etc., for export, but, here again, difficulty is being encountered in securing all the iron required. Licences are being granted for two-month periods, but in order to spread supplies equitably among the trade, consumers are allowed only one month's stock.

It is becoming more difficult to get low- and medium-phosphorus iron. One of the largest makers has had to reduce customers' requirements for the first two months of the year by a considerable percentage, and makers of hematite are in arrear with their commitments. Makers of refined iron are also heavily booked and the only new business accepted is for forward delivery; in addition, there is a shortage of both cast-iron and steel scrap. Large tonnages of these are wanted to meet day-to-day requirements. Foundry-coke supplies are coming through according to schedule, and supplies of limestone, cupola ganister, and firebricks can be obtained without much difficulty.

Steelmakers have started the year with overloaded order-books, and much of the output will be for P.M.L. contracts. It is not yet known what tonnages can be spared for export during Period I, but it is not thought that it will be very much in view of the pressing home demands. There is a growing expansion in the demand for carbon steels from the agricultural-implement makers, who have a big programme ahead both for home and export trade. The makers of special steel are heavily booked, and it is imperative that if target figures are to be achieved, there must be a big output expansion in the next few months.

All re-rollers, particularly those making small sections, need billets urgently; recently there has been some improvement in the supplies from English sources of heavy slabs and blooms, which has helped in the making of wider strip and heavier sections, but what is needed most of all is small billets, 2 in. to 3 in., and suitable flat billets for narrow strip. Bigger outputs have been possible from home makers of semis, but imported supplies have been very meagre for some months.

Non-ferrous Metals

New Year's Day brought the announcement that the contract for tin between the American Reconstruction Finance Corporation and the Bolivian producers had been fixed for 1948 and 1949 on the basis of 90 cents per lb. of tin metal, a price rather lower than had at one time been anticipated in United Kingdom metal circles. This price more or less confirms the figure at which the Ministry of Supply has agreed to purchase from the Malayan producers. It also establishes the price which the British Government will pay to Bolivia during the present year.

The Ministry of Supply announced on Tuesday that in consequence of the settlement of the price for Bolivian tin, adjustments have been made in the price of tin metal in the United Kingdom to take effect on January 6. The price of tin, minimum 99 per cent. up to under 99.75 per cent. tin content, has been increased from £510 to £519 per ton, f.o.b. U.K. port or delivered U.K. consumers' works. Other grades are varied as follow:—Refined tin, 99.75 per cent. minimum, from £513 10s. to £522 10s.; refined tin, 99.9 per cent. minimum in 28-lb. ingots, from £518 to £527; grain bar tin, from £530 to £539; granulated tin, from £535 to £544. The customary extras for small lots, packing, etc., will apply. The Ministry of Supply has also adjusted the purchase price of Nigerian ore by raising it from £477 to £485 10s. per ton of tin in ore, f.a.s. Nigerian port.

The rise in scrap prices has continued, and merchants are still raising their selling limit, owing to a natural inclination to secure as much as possible for their offerings and to the high prices demanded by the holders of old metals. Secondary metal in all its forms is undoubtedly scarce, and this prompts consumers to pay, albeit unwillingly, prices which a month or two ago they would have deemed ridiculous. But by this time values are approaching a level which makes the purchase of secondary metals hardly an economic proposition, for in some cases there is barely sufficient margin below their value in terms of virgin metals to cover the loss entailed in melting, together with handling costs. It must always be remembered that the form in which scrap is put on the market is an important factor in its disposal, and the question of coping with old metals is one which the non-technical man is apt to overlook in his approach to the problem. Brass swarf, on which must be reckoned usually a 10 per cent. loss from moisture, etc., was sold last week at £85 and perhaps even higher, while it is believed that No. 1 H.C. copper-wire scrap changed hands as high as £125. Such prices are, of course, beyond all reason and some reaction in values is certainly overdue.

Steel Census to be Revived

The wartime custom of taking at six-monthly intervals, a census of receipts, consumption and stocks of steel by consumers is to be revived in view of the changed demand by consuming interests and the forthcoming revision of the iron and steel distribution scheme. The Government has decided, as a matter of urgency, to take a census of receipts and consumption of steel during the fourth quarter of 1947, and of stocks as at December 31, 1947. The form will be in the hands of some 18,000 steel-using firms during next week.